CalPERS Global Real Estate

Environmental Initiative Update:

Report to the Investment Committee

Submitted to

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Executive Summary

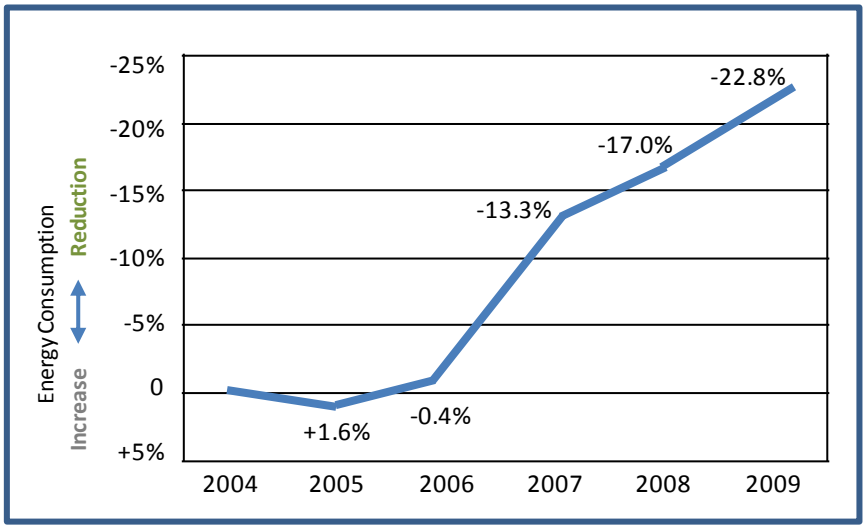
This report is the final update on the initial phase of the CalPERS environmental initiative and the five-year voluntary Energy Efficiency Plan. It provides an update on 2009 energy efficiency progress by CalPERS Core real estate investment managers, and environmental efforts by domestic Core and Non-Core managers.

Section A reports on the Core real estate portfolio's progress toward the voluntary Energy Efficiency Plan goal of reducing energy consumption by 20% over five years. Over the five-year performance period, the portfolio has reached the goal with a commendable 22.8% total reduction in energy consumption. The attachments to this report entitled "Energy Efficiency Plan Analysis" and "Energy Efficiency Plan Analysis Methodology" provide detailed information on the calculations for the analysis.

Section B covers green activities undertaken by Core and select Non-Core managers in 2009, additional activities planned for 2010, and organization-wide initiatives underway for the managers. These activities represent managers' efforts to continue improving energy efficiency, water efficiency, and waste management practices in their portfolios. The attachment entitled "Qualitative Survey Responses" is a more detailed summary of these efforts. All attachments are available upon request.

Progress toward Energy Efficiency Plan Goal:

Aggregate Energy Savings 2005-2009 (Compared to Baseline Year 2004)



Since the inception of this initiative, there have clearly been increases in environmental consciousness as managers strive to enhance sustainability. All managers recognize the importance of an industry shift toward environmentally sensitive real estate practices and continue to implement cost-effective strategies to achieve CalPERS environmental objectives, consistent with their fiduciary obligations and goals. These efforts have been the reason for the success in reducing energy consumption by 22.8% over five years.

While the quantitative analysis is helpful for communicating the status of the environmental initiative, it requires caveats. The CalPERS real estate portfolio consists of multiple property types and it frequently changes in composition and size. When distilling data across a dynamic portfolio into a single value, several factors affect the results, such as property type, sample size, and properties' efficiency at the start of the initiative. Therefore the aggregate energy consumption reduction should be considered a *representative,* rather than absolute, measure. Further, Section B – the summary of managers' efforts to improve sustainability in their portfolios – should be considered a very important supplement to the Energy Efficiency Plan analysis and a key indicator of overall environmental achievements.

A. Report on the Energy Efficiency Plan: Core Portfolio

1) Overall Results

The analysis of the 2009 data reveals a total energy reduction of 11.4% in 2009 (compared with 2008). Compared with the 2004 energy consumption baseline, the total reduction in overall energy consumption in the five years of the CalPERS environmental initiative has reached 22.8%.

The reduction in energy consumption is equivalent to preventing an estimated cumulative 126,000 tons of carbon dioxide (CO2) emissions from 2004 to 2009. This is equivalent to removing approximately 22,000 cars from the road or powering approximately 9,750 homes for a year. The carbon avoidance calculation was developed in support of overall CalPERS efforts to document its environmental achievements across multiple asset classes. Due to the inherent complexities of calculating carbon dioxide emissions avoidance from a shifting real estate portfolio, and the numerous possible approaches that could be employed, this number should be considered a representative figure.

2) Methodology Overview

To develop the energy consumption reduction numbers, quantitative energy usage data for the 2009 calendar year was collected from all Core managers for stabilized properties owned in 2009. Managers were asked to provide information only for properties with a full 12 months of data in 2009, as only those buildings with complete data in each calendar year are analyzed. Collectively, managers reported 83% of the Core assets. Energy use for each Core manager is detailed in the attachment "Energy Efficiency Plan Analysis."

Of the properties that managers included in their reports, many properties did not have access to the requested energy consumption data, and therefore are not included in the analysis. The majority of these buildings are industrial properties in which the landlord is not responsible for energy costs. Other individual properties are not included in the analysis due to unique situations (for example, a mixed-use property with energy meters that are shared between the multifamily and retail portions, and an office building with an exceptionally large data center). Unique cases are listed in the attachment "Energy Efficiency Plan Analysis Methodology." Ultimately, for these reasons, approximately 27% of CalPERS Core assets are included in the analysis of progress toward the Energy Efficiency Plan goal. This sub-set of analyzed buildings can be considered a representative sample of the complete portfolio.

Changes in energy consumption are calculated per-square-foot to account for the changing portfolio size each year. The following measures of energy usage are used to provide a combination of (a) appropriateness and relevance to each property type, and (b) maximum consistency and simplicity across property types:

- Office – total energy usage per occupied net rentable square foot
- Multifamily – common area energy usage per net rentable square foot
- Industrial – common area energy usage per net rentable square foot
- Retail – common area energy usage per net rentable square foot

Using these measures, 2009 data is compared with energy usage data for the baseline year and the previous year (2008). In general, the baseline year is 2004, but in some cases, for specific managers it is necessary to use a different year as the baseline due to lack of sufficient 2004 data. For simplicity, this report and analysis refers to 2004 as the baseline year overall.

To calculate the total energy reduction, it is necessary to convert kWh to Btu so that they may be combined using a common denominator. Because electricity comprises a greater proportion of portfolio energy usage than gas usage, this yields a more accurate representation of the change in total energy than does summing the percentages of electricity and gas savings. Additional information on the calculation and analysis methodology is provided in the "Energy Efficiency Plan Analysis Methodology" attachment.

3) Additional Considerations

The following additional information should be considered, as it affects interpretation of the results:

- The real estate portfolio is both diverse and dynamic. Property type and sample size significantly affect the year-to-year energy consumption reductions as buildings were purchased or sold from 2004 to 2009. Though JDM created some controls for these issues where possible, the aggregate energy consumption reduction from 2004 to 2009 should still be considered a representative measure of energy efficiency improvements. Examples of situations that could impact the results include the following:
    - If properties in a cold-weather climate are sold and properties in a temperate climate are purchased the following year, this could appear to be an energy efficiency improvement when in fact the energy reduction may be due to the different climates.
    - The purchase of a new building may appear to negatively impact the overall energy reduction number because managers have not yet implemented energy efficiency improvements in the new property, or because the property has a different energy use profile than the portfolio average.
    - Whereas all buildings use electricity, only a portion uses natural gas; if these natural gas buildings are bought and sold, the fuel mix of the portfolio changes. The constantly shifting nature of the portfolio in terms of fuel mix affects the electricity, natural gas, and overall energy reduction numbers. Please refer to the attachment "Energy Efficiency Plan Analysis Methodology" for an example of this situation.

- CalPERS selected 2004 as the baseline year for measuring progress against the Energy Efficiency Plan goal. The methodology must report year-over-year changes against the 2004 baseline, which precludes the consideration of the efficiency of the buildings at the starting point. Therefore, buildings that were operated very efficiently at the start of the analysis period may appear on the surface to be falling short of the goal, whereas in reality those buildings are top performers and may be limited in the additional incremental energy reductions they can achieve.

- CalPERS established 2004 as the baseline year despite the fact that the energy reduction goal was not announced until the end of that year. As a result, managers may not have been able to provide complete2004 data. Therefore, it was necessary to exclude some outlying 2004 data points from the analysis. The data quality steadily improved each year since the baseline.

B. Green Activities Undertaken by Managers in 2009: Core and Non-Core Portfolio

All of the Core managers and select Non-Core managers responded voluntarily to a qualitative survey covering green activities undertaken in 2009 within their portfolios. The responses are a very important indicator of overall environmental achievements because many achievements are challenging to quantify in the Energy Efficiency Plan analysis.

In 2009, managers continued their focus on no- and low-cost operational strategies to improve environmental performance, with limited new initiatives being undertaken in light of the sustained economic downturn. Some of the most commonly reported operational strategies included utilizing preventative maintenance programs to enhance efficiency of energy- and water-consuming equipment; reducing landscape irrigation watering times; monitoring water bills and equipment closely in order to identify and fix leaks; and maintaining recycling programs for occupant waste.

Of particular importance were initiatives to educate tenants and residents to reduce energy and water usage and waste production. Maintaining consistent communications with tenants and inspecting their leased spaces can keep property management teams aware of any increases or problems with utility consumption and lead to reduced energy and water consumption.

Managers also reported upgrades to equipment such as lighting, HVAC, appliances, and plumbing fixtures at certain properties. Most often, these upgrades took place during tenant improvements, build-outs, turnovers of residential units, and property rehabilitations; when replacing equipment at the end of its useful life; and/or where utility rebates were available to offset initial costs. By leveraging these opportunities, managers improved the cost-effectiveness of energy- and water-saving equipment upgrades.

In many locales (including California), building codes are becoming stricter, meaning that many new developments, rehabilitations, and tenant improvements are already required to include a minimum level of energy- and water-efficient equipment. However, there is a need for CalPERS

Noteworthy 2009 Achievements: Core Managers

BlackRock: Three developments completed in 2009 achieved green building certifications. Properties continued implementing audit recommendations: several installed "Model Minder" devices to regulate energy usage in model units; four properties installed additional attic insulation at no cost through government and utility rebates (saving 2.6 million Btu's annually).

CommonWealth Partners: The two properties in the portfolio each performed energy-efficiency improvements such as adding CO sensors to parking garage ventilation fans, replacing chillers, and retrocommissioning.

First Washington: Along with its JV partner, Equity One, First Washington is piloting an energy management system for common area lighting, and is looking into engaging a company to audit and benchmark energy use and greenhouse gas emissions.

Hines: All properties have had their potential for LEED certification evaluated; 4 of the 9 properties are in the implementation phase or have received certification, including the first multi-tenant LEED EB: O&M Platinum certified building in California. Eight of 9 assets are ENERGY STAR labeled, and all properties maintained or improved their ENERGY STAR scores from the prior year. The portfolio average ENERGY STAR rating is 88 out of 100, meaning the portfolio is performing in the 88th percentile of all properties nationwide. Most properties intensified their tenant education efforts through the HinesGO program.

GID Investment Advisers: All communities now have recycling programs for batteries, fluorescent bulbs, and ballasts, as well as paper recycling in the leasing offices. At one property, GID replaced trim around 105 patio doors with a product made from recycled and reclaimed plastic and wood.

LaSalle: LaSalle promotes sustainability best practices using a Sustainable Operations Toolkit and focuses on identifying specific, actionable energy-saving opportunities at each property.

Miller Capital: During a redevelopment, one property enhanced building automation controls, installed energy recovery ventilation systems, added variable speed drives, and retrofitted lighting. Another replaced 8 common area HVAC units with models that reduce energy use by 25%. At another property, the Macerich Strategic Energy Program was implemented, including an investment of $1.7 million in lighting, mechanical, and control improvements.

RREEF: As part of tenant improvements, RREEF installed high-efficiency lighting and HVAC equipment, motion sensors, programmable thermostats, low-flow toilets, and motion-activated faucets.

to encourage and educate managers to explore further sustainability measures beyond the status quo.

Some managers track the energy, water, and waste reductions from these initiatives at the portfolio and/or property level; in many cases they reported decreased energy and water usage and waste production. Some managers also reported year-over-year consistency in usage and costs, even as occupancy and utility prices may both have increased. This shows that efforts to reduce utility consumption will be increasingly important as the economy recovers and occupancy potentially increases.

Qualitative survey responses are summarized in greater detail in the bullet points below (sections 1-6). The bullet points are roughly ordered in terms of frequency, with the most common activities appearing first. Additional details on each manager's activities can be found in the attachment entitled "Qualitative Survey Responses," along with a glossary of acronyms and terms.

1) Energy Efficiency

Survey responses indicated that managers took the following steps to increase energy efficiency:

- Installing more energy-efficient lighting
- Installing occupancy sensors, daylight sensors, timers, and/or Energy Management System (EMS) control on lighting systems
- Replacing inefficient heating, ventilation, and air conditioning (HVAC) systems, pumps, motors, and water heaters with more efficient units
- Installing ENERGY STAR appliances
- Educating tenants and residents on energy conservation
- Implementing operational best practices (such as adjusting HVAC, water heater, and swimming pool temperature set points) and preventative maintenance programs
- Turning off equipment at night and in unoccupied spaces
- Designing new buildings to maximize natural light and thermal comfort
- Performing assessments and energy audits to identify further energy efficiency opportunities

2) Water Efficiency

In 2009, managers conserved water by:

- Installing low-flow fixtures (e.g., faucets, showerheads, toilets, and irrigation heads)
- Reducing landscape watering times and days
- Using drought-resistant, native plants when new plantings are required
- Monitoring water bills and equipment closely in order to identify and fix leaks
- Using irrigation controls to adjust watering based on weather and climate

Noteworthy 2009 Achievements: Non-Core Managers

Buchanan: Management teams took steps such as installing new building automation systems, adding VFDs, and eliminating Saturday heating and cooling except by tenant request.

BUILD: Energy- and water-efficient washer/dryer stacks were installed, qualifying for rebates from both energy and water utility companies. Development projects used wood-alternative flooring, reused existing materials, and recycled construction debris.

CalSmart (RREEF): Management teams took advantage of tenant improvements to incorporate energy- and water-efficient equipment. One property implemented a composting program accompanied by extensive tenant education.

CityView America: Certain properties are built to the standards of green certification programs (e.g., ENERGY STAR and California Green Builder).

Kennedy Associates: The hotel in the portfolio installed monitors on domestic hot water boilers and, as a result, has seen monthly gas use reduced by up to 17%.

Klein Financial: Properties installed low-flow fixtures and implemented a system to charge residents for actual water usage (creating an incentive for residents to conserve water). Klein Financial is currently reviewing a proposal to create solar energy at the portfolio's three existing properties.

- Educating tenants and residents on water conservation
- Installing drip irrigation systems
- Installing ENERGY STAR dishwashers and washing machines, which are both energy- and water-efficient
- Monitoring and better regulating cooling tower water

3) Waste Management

Managers took various steps to reduce waste, and several properties were able to earn revenues or invoice credits for recyclable materials, reducing overall utility expenses. Measures taken include the following:

- Implementing, maintaining, and/or enhancing recycling programs (nearly all properties now have recycling programs in place)
- Educating tenants and residents on recycling and waste reduction
- Reducing the frequency of pick-ups by installing additional containers, requesting hauls only as needed, and/or redistributing waste among containers
- Collecting and recycling hazardous waste such as light bulbs, electronics, and batteries
- Recycling construction and demolition waste and/or reusing existing on-site materials for construction
- Making an effort to reduce waste in leasing/management offices

4) Other Green Measures

Managers continued to take environmentally sensitive steps such as:

- Achieving LEED and ENERGY STAR certifications
- Using "green cleaning" products
- Reducing vehicle emissions associated with occupants' trips and/or property maintenance
- Using environmentally-sensitive building materials (e.g., made from renewable resources)
- Mitigating and treating stormwater runoff

5) Organization-Wide Green Initiatives

The Core and Non-Core managers were asked to provide information on green initiatives within their organizations. These initiatives include the following:

- Sustainability policies, goals, teams, and strategic plans
- Staff training on best practices that reduce energy, water, and waste
- LEED and ENERGY STAR certification assessments and targets
- Creation of internal tools such as operations manuals and tenant education programs
- Portfolio-wide environmental audits
- Environmentally sensitive development and redevelopment criteria
- Partnerships with industry associations and nonprofits
- Annual client reporting on sustainability efforts
- Renewable energy evaluations and installations
- Utility monitoring and benchmarking programs

6) Future Plans

Although the initial CalPERS environmental initiative and Energy Efficiency Plan concluded at the end of 2009, the Core and Non-Core managers provided information about their 2010 plans related to energy, water, waste, and other sustainability issues. Generally, managers planned to continue their current efforts, including operational measures to conserve energy and water and reduce waste, equipment retrofit/replacement programs, LEED certifications, and ENERGY STAR benchmarking and labels.

Managers also reported multiple specific improvements for which their properties have budgeted in 2010, in greater quantity and detail than were reported in the previous year's surveys. These include:

- Lighting retrofits with high-efficiency LED, induction, and 25 watt fluorescent lamps
- HVAC controls such as a high-tech boiler regulation system that makes automatic efficiency adjustments
- Low-flow plumbing fixtures
- Green cleaning programs
- More efficient pool pumps and motors
- Painting with low-VOC paints
- New initiatives to benchmark energy performance with ENERGY STAR (focusing on industrial and multifamily properties that have not been benchmarked previously)
- Updated energy management systems and controls

Conclusions

CalPERS managers have made a significant achievement in reducing energy consumption by 22.8% over the five years of the Energy Efficiency Plan. Despite the challenges involved in tracking energy usage and reductions across a diverse portfolio comprised of multiple property types, managers have demonstrated a strong commitment to this effort, which is largely the reason for its success.

Building off these successes in the development of future phases of the CalPERS environmental initiative, CalPERS has an opportunity for industry leadership in environmentally-responsible institutional real estate investment. In collaboration with dedicated, knowledgeable managers – many of whom are industry leaders in this area themselves – CalPERS may look to develop new goals, procedures, best

Noteworthy Portfolio/Organization-Wide Green Initiatives

BlackRock: BlackRock utilized a consultant to audit 45 of 65 properties in the portfolio in 2008 and the beginning of 2009. Audit reports detailed utility usage and recommendations for saving energy, water, and waste; property teams continue to work on implementation. In addition, for the CalPERS report, BlackRock voluntarily provided a "same store" analysis of energy and water reductions for properties that have remained in the portfolio year over year.

BUILD: BUILD's mission is to invest in land or properties that have high density potential and are located near public transit nodes – reducing sprawl and fuel consumption, and using existing infrastructure. BUILD has adopted a green development manual and shares these practices with their development partners to encourage them to adopt similar standards.

Hines: Hines is respected as a leader in energy efficient operations and development. Hines utilizes analytic tools such as chiller efficiency testing and power consumption monitors to constantly measure energy performance. When economically practical, each Hines building has the goal of reaching ENERGY STAR and LEED certification. Further, the "Hines Green Office" (HinesGO) program is used portfolio-wide to encourage tenants to make more environmentally friendly choices in their offices.

Kennedy Associates: A 2009 and 2010 ENERGY STAR Partner of the Year, Kennedy is recognized as an industry leader in Responsible Property Investing. Kennedy benchmarks all eligible assets with ENERGY STAR, targets LEED Silver or higher for developments, and participates in the LEED EB O&M portfolio pre-certification program. Kennedy has sustainable policies, plans, and procedures in place across its portfolio; uses a green office lease; and developed a Sustainable Tenant Improvement Guide in partnership with the Northwest Energy Efficiency Alliance.

LaSalle: LaSalle has a sustainability board to implement consistent policies and practices across the portfolio. Initiatives include LEED and ENERGY STAR certification; a pilot program for sustainability benchmarking; development of a Sustainable Operations Toolkit; energy-saving opportunity assessments; and annual reporting on sustainability.

RREEF: As a member of Deutsche Bank Group (DB), RREEF is committed to the corporate targets set out by DB: reducing CO2 emissions by 20% annually, so that global business activities are climate neutral by 2013, primarily based on increasing energy efficiency and renewable energy. RREEF has developed initiatives to contribute to these objectives, such as LEED EB screening, lighting retrofits, and equipment re-use.

practices, methods for monitoring progress, and/or unique programs for each property type. There is an interest in and need for sharing knowledge and best practices among managers, who believe their portfolios' environmental performance can benefit from lessons learned by other CalPERS managers.

Additional portfolio-wide energy efficiency targets should be approached with caution. When substantial energy efficiency gains have already been achieved at a low cost, it becomes more difficult to achieve additional improvements. Feasibility of further energy reductions also depends on the energy efficiency projects that have already been completed, building type, degree of control that the managers have over day-to-day operations, and the current market conditions.

At the conclusion of the five-year Energy Efficiency Plan, it is clear that an industry shift is taking place toward environmentally sensitive real estate operations, management, and development. Recognizing this shift, managers are committed to exploring and implementing cost-effective strategies to achieve CalPERS environmental objectives moving forward.